Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) An optical information recording medium comprising information tracks extending in a circumferential direction and spaced from each other in a radial direction by lands, wherein:

a first information track and a second information track are radially adjacent but are radially spaced from each other by a single land;

a first phase pit encoding preformat information for the first information track is connected to the second information track and extends radially therefrom toward, but does not reach, the first information track;

said first phase pit and said first information track ~~being~~ are separated radially by a partition wall;

said first phase pit and said first information track ~~having~~ have equal depths [[,]]; and

~~wherein~~ a track pitch of said first information track and a width and a length of said first phase pit are selected according to a condition that the preformat information for the first information track is reproduced from the first phase pit with a differential signal.

2. (original) The optical information recording medium as defined in claim 1,

wherein a width Δ of said partition wall in the radial direction and the track pitch TP satisfy the relationship:

$$\Delta / TP \geq 0.1.$$

3. (original) The optical information recording medium as defined in claim 1,

wherein a width Wp of said phase pit, the length Lp of said phase pit in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$Lp/BD < 1.0, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

4. (previously presented) The optical information recording medium as defined in claim 1,

wherein a width Wp of said phase pit, the length Lp of said phase pit in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq Lp/BD, \text{ and}$$

$$0.5 \leq WP/TP \leq 0.8.$$

5. (original) The optical information recording medium as defined in claim 1,

wherein a width Wp of said phase pit, the length Lp of said phase pit in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq Lp/BD, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

7. (previously presented) The method of mastering as defined in claim 18,

wherein the values of said spot diameters BD1 and BD2 of said first and second exposing light beams are respectively fixed to constant values; and

wherein the distance L between the spots of said first and second exposing light beams is adjusted by changing the incident angle of at least one of said exposing light beams directed to an object lens by use of a light deflection element.

8. (previously presented) An optical information recording medium comprising:

circumferentially extending grooves forming information tracks and phase pits forming circumferentially extending preformat tracks;

a partition wall radially separating adjacent information tracks;

wherein said grooves and phase pits are equally deep,

phase pits encoding preformat information for a given information track are radially spaced from the groove forming the given information track by a partition wall, and

a track pitch of said given information track and a width and a length of said phase pits are selected according to a condition that the preformat information for the given information track is reproduced from said phase pits with a differential signal.

9. (previously presented) The optical information recording

medium as defined in claim 8,

wherein a width Δ of said partition wall in the radial direction and the track pitch TP of said information track satisfy the relationship:

$$\Delta / TP \geq 0.1.$$

10. (original) The optical information recording medium as defined in claim 8,

wherein a width Wp of said phase pits, the length Lp of said phase pits in the circumferential direction, the track pitch TP of said information tracks, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$Lp/BD < 1.0, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

11. (original) The optical information recording medium as defined in claim 8,

wherein a width Wp of said phase pits, the length Lp of said phase pits in the circumferential direction, the track pitch TP of said information tracks, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq Lp/BD, \text{ and}$$

$$0.5 \leq WP/TP \leq 0.8.$$

12. (previously presented) The optical information recording medium as defined in claim 8,

wherein a width Wp of said phase pits, the length Lp of said phase pits in the circumferential direction of said information tracks,

the track pitch TP of said information tracks, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leqq Lp/BD, \text{ and}$$

$$0.8 \leqq WP/TP \leqq 0.9.$$

13. (previously presented) An optical information recording medium comprising:

circumferentially extending grooves forming information recording tracks, and phase pits encoding preformat information for said tracks;

wherein phase pits encoding preformat information for a given track are radially spaced from that track and separated therefrom by a partition wall and are connected to an adjacent track,

said grooves and phase pits are equally deep, and

a track pitch of said given track and a width and a length of said phase pits are selected according to a condition that the preformat information for the given information track is reproduced from said phase pits with a differential signal.

14. (original) The optical information recording medium as defined in claim 13,

wherein a width Δ of said partition wall in the radial direction and the track pitch TP satisfy the relationship:

$$\Delta / TP \geqq 0.1.$$

15. (original) The optical information recording medium as

defined in claim 13,

wherein a width Wp of said phase pits, the length Lp of said phase pits in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$Lp/BD < 1.0, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

16. (original) The optical information recording medium as defined in claim 13,

wherein a width Wp of said phase pits, the length Lp of said phase pits in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq Lp/BD, \text{ and}$$

$$0.5 \leq WP/TP \leq 0.8.$$

17. (original) The optical information recording medium as defined in claim 13,

wherein a width Wp of said phase pits, the length Lp of said phase pits in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq Lp/BD, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

18. (currently amended) A method of mastering an optical information recording medium comprising information tracks extending in

a circumferential direction and spaced from each other in a radial direction by lands, comprising:

exposing a master to a first exposing light beam for forming a first information track and a second information track that are radially adjacent but are radially spaced from each other by a single land;

exposing said master to a second exposing light beam for forming a first phase pit encoding preformat information for the first information track, said first phase pit being connected to the second information track and extending radially therefrom toward, but not reaching, the first information track, said first phase pit and said first information track being separated radially by a partition wall, and said first phase pit and said first information track having equal depths;

wherein, when a spot diameter of said first exposing light beam is BD1, a spot diameter of said second exposing light beam is BD2, a distance between said first and second exposing light beams is L, and the width of said partition wall in the radial direction is Δ, the values of BD1, BD2, L, and Δ satisfy the relationship:

$\Delta = L - [(BD1/2) + (BD2/2)]$; and

wherein a track pitch of said first information track and a width and a length of said first phase pit are selected according to a condition that the preformat information for the first information track is reproduced from the first phase pit with a differential signal.